

PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

A New or Improved Method of Constructing Torpedo Hulls

We, VICKERS-ARMSTRONGS, LIMITED, a British Company, of Vickers-House, Broadway, Westminster, London, S.W.1., and LEWIS JONES, a subject of the King of Great Britain, of the aforesaid Company's address, do hereby declare the nature of this invention to be as follows:—

The present invention is concerned with the construction of torpedo main hulls and with a method of jointing the various sections, the chief object being to provide a construction of torpedo hull which will lend itself to mass production methods.

According to the present invention a torpedo main hull is built up from a number of metal stampings or pressings of circular cross sectional shape assembled together in overlapping end to end relationship, the overlapping ends being seam welded, each stamping including an inwardly directed integrally formed stiffening flange which is situated adjacent the welded joint.

Each section employed in the construction of the main hull is pressed from sheet metal, the various sections being in the form of cylindrical or conical pressings each initially formed at one end with a peripheral flange, the opposite end being left solid, each section therefore being of substantially cup shape and having an outwardly directed flange or lip. The closed end of the pressing which is to enter the open end of the next adjacent section is slightly reduced in diameter so that the outer surfaces of adjacent sections will lie flush when the sections are united together.

The section which has been initially formed with a flange at one end and closed at the opposite end is then machined, the flange being removed and the part of reduced diameter machined back to the correct diameter for mating with the adjacent section, the solid end being then trepanned out to a diameter which will leave an inwardly directed lip

or flange of a sufficient width to ensure adequate stiffness of the sections.

The prepared sections are then erected on an assembly fixture or jig which ensures concentric alignment of the sections, the sections being assembled together with their ends in overlapping relationship and tacked together by wide spaced spot welding. The assembly fixture is then removed and each joint seam welded at a suitable position between the mating ends of adjoining sections. This seam welding, in addition to rigidly securing the sections together, also forms a watertight seal between the outside and inside of the hull.

To produce a flush continuity of hull contour and prevent seepage of water or moisture between the mating joint surfaces, which would result in corrosion, the depression between the extreme edge of each section and the adjacent section is filled flush with the hull contour and the seam between the sections caulked with a synthetic rubber or other plastic or hard filling substance.

It will be appreciated from the foregoing description that the hull sections are completely machine made and therefore suitable for mass production methods, whilst the thickness of the different sections can be varied to suit, so as to get uniform strength throughout the length of the hull. Furthermore each section incorporates its own radial stiffener whilst assembly and welding of various sections together are operations likewise suitable for mass production methods.

Dated this 25th day of November, 1942.

HASELTINE, LAKE & CO.,
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London, England, and
19/25, West 44th Street, New York,
U.S.A.,
Agents for the Applicants.

[Price 1/-]

COMPLETE SPECIFICATION

A New or Improved Method of Constructing Torpedo Hulls

We, VICKERS-ARMSTRONGS, LIMITED, a British Company, of Vickers-House, Broadway, Westminster, London, S.W.1., and LEWIS JONES, a subject of the King of Great Britain, of the aforesaid Company's address, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention is concerned with the construction of torpedo main hulls and with a method of jointing the various sections, the chief object being to provide a construction of torpedo hull which will lend itself to mass production methods.

The method of constructing a torpedo main hull in accordance with the invention consists in producing a number of metal stampings or pressings of circular cross sectional shape, each pressing having an integrally formed inwardly directed stiffening flange, the pressings being of such dimensions that they can be assembled together in overlapping end to end relationship, assembling the various pressings together and securing them together by means of a welding process.

In order that the said invention may be clearly understood and readily carried into effect the same will now be more fully described with reference to the accompanying drawings, in which:—

Figure 1 is a sectional view of one of the stampings or pressings.

Figure 2 is a similar view of the pressing after it has been machined.

Figure 3 is a sectional view illustrating the method of assembly on a removable assembly jig.

Each section employed in the construction of the main hull is pressed from sheet metal, the various sections being in the form of cylindrical or conical pressings each initially formed at one end with a peripheral flange 2, the opposite end being left solid, each section therefore being of substantially cup shape and having an outwardly directed flange or lip. The closed end of the pressing which is to enter the open end of the next adjacent section is slightly reduced in diameter as at 3 so that the outer surfaces of adjacent sections will lie flush when the sections are united together.

The section which has been initially formed with a flange at one end and closed at the opposite end is then

machined, and assumes the form shown in Figure 2, the flange being removed and the part 3 of reduced diameter machined back to the correct diameter for mating with the adjacent section, the solid end 4 being then trepanned out as at 5 to a diameter which will leave an inwardly directed lip or flange 6 of a sufficient width to ensure adequate stiffness of the sections.

The prepared sections are then erected on an assembly fixture or jig 7 which ensures concentric alignment of the sections, the sections being assembled together with their ends in overlapping relationship and tacked together by wide spaced spot welding. The assembly fixture is then removed and each joint seam welded by suitable means preferably automatic at a suitable position between the mating ends of adjoining sections. This seam welding, in addition to rigidly securing the sections together, also forms a watertight seal between the outside and inside of the hull.

To produce a flush continuity of hull contour and prevent seepage of water or moisture between the mating joint surfaces, which would result in corrosion, the depression 8 between the extreme edge of each section and the adjacent section is filled flush with the hull contour and the seam between the sections caulked with a synthetic rubber or other plastic or hard filling substance.

It will be appreciated from the foregoing description that the hull sections are completely machine made and therefore suitable for mass production methods whilst the thickness of the different sections can be varied to suit, so as to get uniform strength throughout the length of the hull. Furthermore each section incorporates its own radial stiffener whilst assembly and welding of the various sections together are operations likewise suitable for mass production methods.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A method of constructing a torpedo main hull consisting in producing a number of metal stampings or pressings of circular cross sectional shape, each pressing having an integrally formed inwardly directed stiffening flange, the pressings being of such dimensions that they can

be assembled together in overlapping end to end relationship, assembling the various pressings together and securing them together by means of a welding process.

5 2. A method as claimed in claim 1, wherein each pressing is initially formed at one end with an outwardly directed integral peripheral flange which is subsequently removed prior to assembly.

10 3. A method as claimed in claim 2, wherein the pressing at the opposite end to that formed with the peripheral flange is closed, the closed end being subsequently trepanned out to form an
15 integral inwardly directed stiffening flange.

4. A method as claimed in claim 3, wherein that end of the pressing opposite to that having the outwardly directed
20 flange is shaped to provide a part of reduced diameter which is adapted to fit within the open end of an adjacent press-

ing, the outer surfaces of adjacent pressings lying flush with one another.

5. A method as claimed in any of the 25 preceding claims wherein the various pressings are assembled together on a removable assembly jig and tacked together by wide spaced spot welding, the
30 jig being then removed and each joint seam welded at a suitable position between the mating ends of adjacent pressings.

6. A method of constructing a torpedo main hull substantially as hereinbefore 35 described with reference to the accompanying drawing.

Dated this 26th day of August, 1943.

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[This Drawing is a reproduction of the Original on a reduced scale.]

